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RECENT CONTRIBUTIONS TO OUR KNOWLEDGE OF FOOD PREPARATION

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Food preparation for so long a time an art practiced by purely rule of thumb methods is passing through the applied science stage and gradually by selecting from the mass of available scientific material that which applies to it directly we are organizing and developing it into the science of food preparation.

Interesting material along this line comes out each year but much is hidden away in technical magazines and never comes to light in the food laboratory. On this account it seems worth while to review some of the more important of the recent articles with their practical applications in our own field. Some of these may be familiar to most of the readers but it seems wise to bring them all together in one article rather than to try to separate those which had probably come to the notice of many of us.

BREAD

In the substitution of other cereals for wheat the chief difficulty is to find a material to take the place of the elastic gluten of wheat. Eggs may be used for this purpose but the price makes them prohibitive. Ostwald and Reidel[1] suggest the use of 30 per cent starch paste for this purpose. They found that by mixing a dough prepared from other than wheat flour with a stiff starch paste in the proportion of 15 per cent of the total weight a satisfactory loaf with good crumb could be obtained. These same authors[2] give the results of breads made from other than

[1] Ostwald and Reidel: The Preparation of a Porous Bread from Starch. *Kolloidatsch*, 17 (1915), pp. 12–14.

[2] Ostwald and Reidel: Baking without Grain Flour. *Chem. Ztg.*, 39 (1915), pp. 537–38.

wheat flours by the addition of a 20 per cent starch paste compared with those mixed with egg and liquid and liquid alone. The starch paste in every case gave a more satisfactory texture.

Interesting in this connection is the description of a patent recently granted for a process of making bread: United States Patent 1,235,330.[3] Bread dough is formed of rye flour 2 pounds, blended flour 74 pounds, yeast 6 ounces, salt 2 pounds, and water 52 pounds. The rye flour is first mixed with boiling water and allowed to stand for twelve hours. There is then added to it a separately prepared sponge formed of water, blended flour, yeast, and salt, and the remainder of the blended flour, salt, and water is then added.

Hay flours are a comparative novelty as food stuffs. They are discussed in an article by F. Octken.[4] In our own country we have already reported work upon the alfalfa flour in bread making by Elizabeth Sprague of the University of Kansas.[5]

Additional value is attached to the use of these flours by the recent work of McCollum in regard to their content in the fat soluble accessory so essential for health.[6] As much as 30 per cent of the alfalfa flour in the total diet will supply the necessary fat soluble accessory in the diet even when there is none provided from any other source.

Considerable attention has been given in the past year or so to conditions of activity of the yeast with the idea of improving the quality of the loaf and decreasing the loss by fermentation.

Arnold Wahl[7] concludes that natural lactic acid used in bread making gives a larger loaf with whiter, more velvety crumb and improved bloom and color of crust. This may be obtained in the home by the use of buttermilk as the liquid in the preparation of bread.

Kohmann and his co-workers[8] suggest the use of a mixture of salts which they call yeast nutrients. In the use of this mixture the rising time of the bread may be decreased, or 50 to 65 per cent of the yeast saved. On account of the relatively high cost of the yeast the cut is usually made in decreasing the amount used. In connection with this there is a saving

[3] *Chem. Abs.*, 11 (1917), p. 2594.

[4] F. Octken: The Use of Hay Flour in the Nutrition of Animals and Men. *Wiener Landw. Ztg.* 65 (1915), p. 338; abs. *Chem. Abs.* 10 (1916), p. 499.

[5] *Jour. Home Econ.*, 9 (1917), p. 257.

[6] E. V. McCollum: The Supplementary Dietary Relationship Among Our Food Stuffs. *Jour. Amer. Med. Assn.*, 68 (1917), p. 1383.

[7] Wahl: Better Bread by Means of Natural Lactic Acid. *Jour. Indus. and Eng. Chem.*, 7 (1915), p. 773.

[8] Kohman, Hoffman, Godfrey, Ashe and Blake: *Jour. Indus. and Eng. Chem.*, 8 (1916), p. 781.

of two per cent fermentable carbohydrates calculated on the basis of total flour used, due to greatly diminished decomposition of them by yeast. It has the additional advantage of enabling them to control more directly the conditions under which bread is made.

In a discussion of this paper at a meeting of the American Chemical Society some doubt was expressed as to whether this action was due to the nutrient relation of the salts to the yeast or their effect on the gluten, thus making a shorter fermentation time possible.

In United States patent 1,222,304 April 10, Kohman, Godfrey and Ashe[9] receive a patent for a method of economizing the amount of yeast used in leavening bread by mixing cheese with the dough to serve as a yeast food during fermentation. Milk in which peptonization has been brought about by the action of certain bacteria, and certain other proteins similarly treated may be substituted for the cheese. The nitrogen containing compound is mixed with a hydrogenated fat in the proportion of ten parts to four or five of the fat and the mixture is added to the flour to the extent of 1 to 1.5 per cent of its weight.

No attempt has been made to review the different substitutes for wheat flour suggested in the literature as this would furnish material for a lengthy article in itself.

MILK

A study of the chemical changes in the souring of milk has been made by Van Slyke and Bosworth.[10] They conclude that in souring 22 per cent of the lactose of milk is decomposed with the formation of lactic acid. A small amount of lactic acid is formed from the decomposition of the citric acid in the milk. The greater portion of the acid is formed during the first twenty-four hours and it is practically complete at the end of forty-eight hours. This is important in the use of sour milk.

The relative efficiency of raw and boiled milk as food has been the subject for many recent researches. McCollum and Davis[11] conclude that heating milk does not decrease the vitamine content. Any decrease in efficiency of milk so treated is due to the decomposition of the casein so the protein factor of the diet is somewhat less valuable after long continued heating. A good summary of the work on the comparative

[9] *Chem. Abs.*, 11 (1917), p. 1865.

[10] Van Slyke and Bosworth: Chemical Changes in Souring of Milk. N. Y. State Tech. Bulletin 48 (1916); *Jour. Biol. Chem.*, 24 (1916), pp. 191–202.

[11] McCollum and Davis: Loss of Efficiency of Milk. *Jour. Biol. Chem.* 23 (1915), p. 247.

efficiency of boiled and unboiled milk in the diet is given by Dr. Lane-Claypon.[12] She concludes that there is no difference in the nutritive efficiency between boiled and unboiled milk, in fact if milk from another species is fed there are reasons to suppose that it may be better cooked than raw.

In view of the former custom of adding lime water to milk for infants and invalids, the work reported by Bosworth and Bowditch[13] is interesting. They find that the addition of the lime water results in the precipitation of more calcium phosphate in the form of a mixture of di- and tri-calcium phosphate. Instead of increasing the alkalinity of milk it really decreases it. They conclude that its use in milk is little more effective in preventing curd formation than the addition of a corresponding amount of water would be. On the other hand, in cases where the amount of hydrochloric acid in the stomach is small, it may do harm by neutralizing this slight degree of acidity and by decreasing the availability of the calcium and the phosphates present in the food.

Sodium citrate is recommended for use in preventing curd formation.[14]

EGG WHITE

Of especial interest to dietitians are the recent findings in regard to the use of raw egg white. Bateman[15] finds that raw egg white is very indigestible in dogs. A tolerance is gained for it after continued use but even then the utilization does not exceed 85 per cent.

In another article[16] Bateman reports the same conditions in man. The use of raw egg white often causes diarrhea and vomiting and the utilization may be as low as 50 per cent. Heating the egg white to 70°C. (158°F) removes the partial indigestibility and puts egg whites into the category of readily assimilable nutrients. Acids and bases can likewise effect a change in the same direction.

This whole question is discussed in an editorial of the *Journal of the American Medical Association* 69, (1917) p. 1006.

[12] Janet E. Lane-Claypon: Milk in its Hygienic Relations. Reviewed in *Jour. Home Econ.*, 9 (1917), p. 41.

[13] Bosworth and Bowditch: *Jour. Biol Chem.*, 28 (1917).

[14] Bosworth and Van Slyke: *Amer. Jour. Diseases of Children*, (1914), p. 298; N. Y. Exp. Sta. Tech. Bulletin 34 (1914).

[15] Bateman: *Jour. Biol. Chem.* 26 (1916), p. 263.

[16] Bateman: *Amer. Jour. Med. Sci.*, (1917), p. 153.

MEAT

In view of the long prejudice against the use of immature veal as food it seems wise to call attention to an article by W. N. Berg[17] on the comparison of immature veal with mature beef as food. No differences in composition of physiological significance were detected. When properly prepared by longer, slower cooking so as to soften the larger proportion of connective tissue present, it was digested quite as readily as mature beef. With this the sole source of the nitrogen growth was normal. The conclusion was that there was no ground for the prejudice against the use of immature veal as food, but that when properly prepared it is perfectly wholesome, especially when the deficiencies in fat and possibly in small amounts of undetermined constituents are made up in the ordinary mixed diet. We cannot consider the use of this form of veal as an economic gain except in exceptional cases.

FISH

At this time when we are being urged to substitute fish for meat wherever possible in order to help stretch the supply of meat it is important that we should know the comparative nutritive values of the different kinds of fish available, as well as the methods of their preparation. A very good summary of the kinds of fish available from the standpoint of the middle west consumer is found in an article by Henry B. Ward which was prepared for the Illinois Food Conservation Committee.[18] Several of the fish described in this article have been discussed in pamphlets issued by the Bureau of Fisheries at Washington, with recipes for their preparation included. A list of these bulletins is given below.[19]

[17] W. N. Berg: Biochemical Comparison between Mature Beef and Immature Veal. U. S. *Dept. Agr. Res.* 5 (1916), pp. 667–711.

[18] H. B. Ward: The Housewife and the Fish Problem. *Jour. Home Econ.*, 9 (1917), p. 369.

[19] Farmers' Bulletin 85: Fish as Food.

Circulars from Bureau of Fisheries, Department of Commerce:

11. Canned Salmon: Cheaper Than Meats and Why.
12. Sea Mussels: What They Are and How to Cook Them.
13. Commercial Possibilities of the Goose Fish.
18. Oysters: The Food That Has Not Gone Up.
19. The Tile Fish: A New Deep Sea Food.
22. The Gray Fish: It Knocks the H out of the H. C. L.
23. The Sable Fish.
25. The Burbot: A Fresh Water Cousin to the Cod.
26. The Bowfin: An Old Fashioned Fish with a New Found Use.
27. A Practical Smoke House for Fish.
28. Preserving Fish for Domestic Use.

A recent study has been made of canned salmon by L. D. Bushnell and C. A. A. Utt.[20] They examined a number of brands of salmon of different grades but find them all sterile and only traces of tin, well below the amount considered toxic. The authors conclude that the reported poisonings following the use of canned salmon were due to its infection after opening the can.

SUGAR

The saving of sugar is at the present time an important question with us and several articles have appeared dealing with possible economies in the use of this ingredient. Marmalade is so important a part of the English diet that we are not surprised to have from that country suggestions for its preparation with smaller amounts of sugar,[21] and the addition of some salt. The results of some similar tests are reported by Miss Lord[22] as the result of experiments at Pratt Institute. They find that satisfactory jam or marmalade can be prepared from 1 pound of fruit with the addition of 6 ounces of sugar and $\frac{1}{4}$ ounce of salt, instead of the usual $\frac{3}{4}$ pound of sugar. These products should not be eaten for several days, or until the characteristic salt taste has had time to disappear.

F. Stutzel[23] reports a loss of sugar in baking under usual conditions. In the author's opinion there is a waste of from 8 to 28.8 per cent of the added sugar in ordinary baking practice, due to the decomposition by the yeast. This may be controlled by a shorter fermentation period and by the use of the yeast nutrients.

C. P. Plaisance and Helen Monsch[24] call attention to the fact that there is a formation of furfurol during the caramelization of sugar. The amount formed seems to be sufficient to be given our attention. If the product is boiled after caramelization, the furfurol is removed. Care should be taken to prevent caramelization in baking of fruit unless the sauce is boiled to remove any possible furfurol formed. Brittle candies should be prepared at as low a temperature as possible and wholly or in part from glucose, since less furfurol is formed in this case. This

[20] L. D. Bushnell and C. A. A. Utt: The Examination of Canned Salmon for Bacteria and Tin. *Jour. Indus. and Eng. Chem.*, 9 (1917), p. 679.

[21] Foods and Cookery: An English Journal.

[22] Isabel Ely Lord: *Jour. Home Econ.* 9 (1917), p. 375.

[23] F. Stutzel: Sugar Extravagance in Baking. *Ztsch. offenta. chemie*, 21 (1915), pp. 152–3; Abs. in *Chem. Zentr.*, (1915), 2, p. 88.

[24] C. P. Plaisance and Helen Monsch: *Jour. Home Econ.*, 9 (1917), p. 167.

has the additional advantage according to the above authors of cheapening the product.

In a recent editorial in the *Journal of Industrial and Engineering Chemistry*[25] attention is called to the possibility of the greater use of sorghum. While the sorghum has not been found to be a profitable source of sucrose on account of the difficulty of its crystallization from a solution containing so large an admixture of invert sugar, starch, dextrin, and gums, these same constituents make them valuable in the industries wherever invert sugar is desirable. Since sucrose has been inverted for industrial purposes, there will be a saving of just so much.

We can use the sorghum in food preparation wherever the invert sugar and the flavor are not a disadvantage and in many cases invert sugar is a distinct advantage, especially in retarding crystallization, as a softener, and as an aid in the retention of water. Corn sirup may be used in the same way. Sorghum has the advantage of being sweeter than corn sirup. The use of sorghum sirups as a substitute for the inverted cane-sugar sirup is discussed more in detail in an article by Jordan and Chesley.[26]

McNair[27] gives tables showing amounts of sugar and water to be added to sirups of a known density to obtain those of a required density. These should be helpful in the work in preserving where sirups of a definite density are desired.

VEGETABLES

As a part of the campaign for the conservation of foods it is important that vegetables should be prepared so as to retain as large a proportion as possible of their soluble constituents. Bodums[28] reports that the addition of salt to the water in which potatoes are being boiled protects the loss of their soluble constituents. Only 1.25 per cent of starch and 10 per cent of mineral matter were extracted when the salt was added, while if the potatoes were boiled in clear water as much as 33 per cent of the mineral matter was lost by solution.

Blunt and Otis[29] show how great is the loss of iron in boiling vege-

[25] *Jour. Indus. and Eng. Chem.*, 9 (1917), p. 731.

[26] Jordan and Chesley: Sources and Composition of Some Commercial Invert Sugar Sirups with Notes on Sorghum Sirup. *Jour. Indus. and Eng. Chem.*, 9 (1917), p. 756.

[27] McNair: Syrups for Canning and Preserving. *Jour. Indus. and Eng. Chem.*, 9 (1917), 151.

[28] Bodums: The Economical Use of Potatoes. Abs. in *Chem. Zentr.*, (1915), 2, pp. 37–38.

[29] Blunt and Otis: Losses of Iron in Cooking Vegetables. *Jour. of Home Econ.*, 9 (1917), p. 213.

tables, calling attention to the advisability of substituting other methods of preparation or the utilization of the water in which they are boiled.

Additional importance is attached to the liquor in which leaf vegetables and possibly others are cooked by the finding of the vitamines in it. McCollum and Kennedy[30] make the following statement: "The water in which cabbage is cooked does not produce any ill effect; on the contrary it contains a substance which when fed to pigeons suffering from polyneuritis caused by an exclusive diet of polished rice effects a cure." Still we find cookery books and home economics texts recommending that cabbage be cooked in a large volume of water and that water be discarded, in some cases even discarding a second cooking water.

Another common practice in cookery, that of adding soda without an acid to neutralize it in the preparation of foods is to be discouraged.[31] Sullivan and Myer account for the prevalence of pellagra in certain sections of the south as due, in part, to the custom of adding baking soda as a leavening agent to the corn bread without any acid. Feeding experiments with the bread so prepared gave symptoms of vitamine deficiency which were relieved when the bread from the same meal properly prepared was given. The authors conclude that heating in an alkaline solution destroys the vitamine content. While few of us are guilty of using sodium bicarbonate alone as a means of leavening, it is frequently added to the water in which legumes and certain other vegetables are cooked and the effect on the vitamine content is probably the same.

CANNED FOODS

Dickson[32] gives the summary of several cases of Botulism, poisoning by the toxin formed by the B. botulinus. In experiments he found that in case the vegetable material is infected with either of the spore bearing forms, B. botilinus or B. subtilis, they are not destroyed in the time recommended for water bath heating in the government directions for canning by the cold pack method. He therefore recommends that special precautions be taken to see that all the materials so canned be heated before being used as food. Since the heating destroys the toxin, such materials may be safely used for food after being so treated.

[30] McCollum and Kennedy: *Jour. Biol. Chem.*, 24 (1916), p. 491.

[31] Voegtlin, Sullivan and Myer: Diet in Relation to Pellagra, U. S. Public Health Reports, 31 (1916), pp. 935–43.

[32] Dickson: Botulism, the Danger of Poisoning from Vegetables Canned by the Cold Pack Method. *Jour. Amer. Med. Assn.*, 69 (1917), p. 966. See also Editorial in this Journal, p. 578.

Bigelow[33] concludes that the solids of canned foods contain a materially higher amount of tin than the liquor and this difference is increased with the age of the sample.

COFFEE

Some recent experiments on coffee making carried out in connection with the trades have given rather interesting results. Kennedy[34] concludes: (1) The ease of extraction of coffee is directly proportional to the fineness of grinding. (2) Water at 212° is twice as efficient in extracting color and flavor as water at 150°. While caffein and caffetannic acids are soluble in cold water, the flavoring substances require the boiling temperature.

Bacon[35] concludes that the most palatable brew is obtained at 195°F. From the bromotological standpoint, French drip coffee is the best.

SPICE

Freda M. Bachmann[36] states that spice in the amounts ordinarily used by the housewife do not exert a very considerable preservative action. Cinnamon, cloves, and allspice if used in large amounts may retard the growth of molds. In combination with vinegar they are more effective. Pepper and nutmeg have little effect on the growth of micro organisms. Cloves and allspice are effective in large amounts; cinnamon is not effective.

[33] Bigelow, W. D.: Tin in Canned Foods. *Jour. Indus. and Eng. Chem.*, 8 (1916), p. 813.

[34] Kennedy, Wm. M.: Late Studies in Coffee Making. *Amer. Food Jour.*, 9 (1914), p. 155.

[35] Bacon, R. F.: The Efficiency of Coffee Making Devices. *Tea and Coffee Trade Jour.*, 29 (1915), p. 427.

[36] Bachmann, Freda M.: *Jour. Indus. and Eng. Chem.*, 8 (1916), p. 620.

SOME RECENT INVESTIGATIONS IN NUTRITION AT THE UNIVERSITY OF WISCONSIN

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Prof. E. V. McCollum, who has recently left the State University of Wisconsin to take charge of the department of chemistry in the new School of Hygiene and Public Health of Johns Hopkins University, during the past few years has carried on a vast number of feeding experiments that have distinctly pointed out the value of right diet.

The method of study has been the feeding of growing animals, chiefly rats, with purified food substances, as well as foods obtained from natural sources. Varying amounts of proteins, carbohydrates, fats, mineral substances, and the food accessories were employed in the rations fed. The progress of each animal was carefully watched throughout its life cycle. Since a perfect diet makes possible normal growth, reproduction, and successful rearing of young at frequent intervals, the value of the diet was judged by the response of the animals under investigation.

After failing to secure normal growth in animals on a diet of purified food substances, McCollum found that the addition of the ether extract of egg yolk or of butter, together with the water extract of various foods, caused growth to be resumed. The addition of a water extract of cabbage as well as of potato, egg yolk, wheat embryo, or oats, to a diet consisting of polished rice, plus inorganic material, a good protein, and 5 per cent of butter fat, stimulated growth in animals which were greatly depleted on a diet which contained the latter substances but lacked the water-soluble extract. Similarly a diet which included the water-soluble extract but lacked the fat-soluble food accessory failed to produce normal growth.

McCollum concluded from these results that besides the well recognized food constituents there are necessary for normal nutrition two other complexes the chemical nature of which has not yet been determined. One of these is associated with certain animal fats (it has never been found associated with vegetable oils) and is soluble in fat solvents, while the other is soluble in water. Later experiments have shown that the fat-soluble accessory is to a certain extent also soluble in water. Until these substances shall be further identified McCollum has designated them as fat-soluble A and water-soluble B, respectively.

An appreciation of the physiological value of the food accessories made possible a more comprehensive study of the naturally occurring foods. In these investigations McCollum not only determined the presence of the food accessories, but examined the character of the protein and inorganic material as well.

From these studies he concludes that it is impossible to obtain growth over an extended period on a diet restricted to the seeds of plants because of the lack of a sufficient amount of one or more of the essential food constituents. The inorganic content of seeds is insufficient to meet the demands of a growing animal. The amount of sodium and calcium is too low for physiological well-being. In view of this fact the addition of a certain amount of salt (sodium chloride) to cereals has distinct dietetic value. In certain sections of the country where the water contains an abundance of calcium, this calcium deficiency may in part be overcome.

The inorganic content of the leaf, on the other hand, differs materially from that of the seed. This is especially rich in calcium, sodium, and chlorine, substances which have been found to be low in the seed. In this particular, then, the seeds and leaves supplement each other.

In other respects seeds and leaves have been found to have supplementary relationships. The seeds investigated, cereals and certain legumes, were found to contain poor proteins, whereas leaves contained relatively good proteins; and when reckoned on the dry basis the protein content of leaves is not inconsiderable. Rats fed a diet consisting of ground corn (maize) 50 per cent, dried alfalfa 30 per cent, and peas 20 per cent, functioned normally in every respect.

In general the fat-soluble food accessory was found to be too low in seeds to supply the demands of the growing animal; this was true even in those seeds which contained fairly large proportions of fat. It is interesting to note here that the amount of fat-soluble A has been found to be highest in the smaller seeds, such as flax and millet. McCollum suggests that this is probably due to the relatively large proportion of germ in comparison with the endosperm in such seeds. Both leaves and seeds contain an abundant supply of water-soluble B. In the cereals, however, this may be modified by the process of milling, since much of the water-soluble food accessory has been found to be located in the embryo. The association of the unidentified dietary factors A and B with the functioning cell may account for the exceptional richness of

the leaf in these factors, for the leaf, being the seat of great synthetic activity, consists of a relatively large number of functioning cells.

An exclusively vegetable diet selected with adequate knowledge of its properties may insure complete nutrition, but a diet which also includes meat, eggs, and especially milk, is far safer. This is particularly true when considered from the standpoint of proteins, for when proteins are selected from several sources they will probably not be lacking in the same amino acids. The animal proteins supply those amino acid complexes which are essential to the animal organism in very nearly the same proportion as is found in the human body. Many of the vegetable proteins, on the other hand, have been found to be incomplete from the point of view of human nutrition. Some lack essential amino acids, while others contain them in insufficient amounts. It has been somewhat disconcerting to have to give up the widely accepted theory that the legumes can take the place of animal proteins in the dietary; but McCollum has found that both peas and the white bean contain poor proteins and therefore cannot exclusively take the place of meat, milk, and eggs. It is interesting to note that gelatin, which has long been considered to consist of a poor protein, becomes of considerable importance when used to supplement the protein of some of the cereals. Animals fed both wheat and oats to which small amounts of gelatin, together with a suitable inorganic material and fat-soluble A were added made normal growth, whereas those which were fed a similar diet containing no gelatin suffered nutritive disaster. Gelatin apparently contains those amino acids which are either low or lacking in certain cereal seeds. It does not, however, supplement the proteins of maize or of peas and beans.

McCollum has definitely proved that beri-beri is a dietary deficiency disease due to a lack of the water-soluble food accessory. The addition of water-soluble B to polished rice produces more nearly normal growth; however, polished rice is lacking in certain other respects. Like cereal seeds in general it contains a poor protein, too small an amount of a suitable inorganic material, and too little fat-soluble A.

We are warned, however, against the idea that certain other diseases, such as pellagra, richitis, and scurvy, the etiology of which is at present obscure, are necessarily dietary deficiency diseases. Symptoms similar to those of scurvy have been produced in a large number of guinea pigs on a diet of oats and whole milk. Since this condition is relieved by laxatives such as phenolphthalein, or liquid petroleum, it seems probable that

scurvy is due to retention of feces in the coecum. The antiscorbutic action of orange juice McCollum believes may well be accounted for by the laxative action of the contained potassium and sodium citrates, and the tendency of citric acid to keep down the development of certain types of bacteria.

A consideration of the diet of the pellagrin suggests that the disease is due to a combination of foods in which there is an insufficient amount of more than one of the essential dietary factors: fat-soluble A, suitable inorganic material, and physiologically good proteins. McCollum points out that an unfavorable proportion among the well recognized constituents of the diets as well as of the recently appreciated food accessories, together with the unsatisfactory physical factors of the pellagrin's diet, and injury wrought through the agency of microörganisms inhabiting the alimentary tract will account for all the observed types of pathological phenomena.

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McCollum, E. V. and Kennedy, Cornelia: *Jour. Biol. Chem.*, 1916, 24, 491.. McCollum, E. V., Simmonds N. and Pitz, W: *Jour. Biol. Chem.*, 1916, 28, 153; 1916, 28, 483; 1917, 29, 341; 1917, 29, 521; 1917, 30, 13.

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INTERRUPTIONS

So long as there is work to do there will be interruptions—breaks in its progress. And it is a part of one's character growth to bear these timely or untimely interruptions without any break in good temper or courtesy.—*Business Men's Calendar.*

SOME RECENT MAGAZINE ARTICLES ON THE STANDARD OF LIVING

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The wide range of topics covered in a course on the Economics of the Family Group, the scattered sources of information, the fact that much is still to be done in correlating the material which has appeared, presents difficulties in such an article as this. Much of the important new material in Economics does not appear in magazine articles, as is so frequently the case with the natural sciences, but in books, which would require too much space and discussion to present. Then, too, the nature of the subject matter is such that it cannot adequately be summarized in a few sentences; often the way in which the conclusion has been reached is as important as the conclusion itself.

To retain coherence in somewhat scattered material, and to keep this paper within reasonable bounds, the subject has been rather arbitrarily limited to a presentation of some recent magazine articles pertaining to the standard of living. The scope of this article has necessarily been determined and limited by the subject matter of the articles quoted. For various reasons, reports upon market conditions have been omitted. The period covered is approximately from January, 1916, to September, 1917, inclusive.

The question of the standard of living is one of the most important in the theory of consumption. Professor Marshall has defined it as the standard of wants and of activities. It has been called the dynamics of the theory of consumption. The desire to maintain or to improve a given standard of living is one of the strongest incentives to progress, and one of the greatest bars to retrogression.

The standard of living, accepting Professor Marshall's definition, is interwoven with the most perplexing questions of living. Consideration of it is not confined to economics or to sociology. Aid in solving its problems comes from physiology, biology, chemistry, ethics, and religion.

It is said that welfare can be increased as much by a better ordering of consumption as by increased production, and that, too, without any real retrenchment in consumption. To teach the values of foods and the principles of nutrition, to set better, truer values in expenditures for clothing and house furnishings, to bring about better living conditions,

is to bring about a better ordering of consumption and thus an improvement in the standard of living. To a very large degree the value of home economics should be measured in its effect upon the standard of living. The problems, then, of the standard of living are of interest to the worker in home economics.

An article on the "Implications of a Standard of Living"[1] is stimulating and interesting, not so much for the manner and thoroughness of discussion as for the range of topics considered, illustrating the many ramifications of the subject, and opening up many suggestive lines of thought from many authors, though no new point of view is presented.

A brief résumé of the points touched upon will suffice. An increase in the standard of living is possible with the increasing control of man over the forces of nature, enabling him not only to satisfy his wants with less expenditure of labor, but to develop new wants of a more varied and of a higher nature. A standard of living is developed slowly, and once destroyed cannot easily be rebuilt.

The imitative character of our standards, their relation to marriage, to the birthrate, and to what some consider the increasing instability of the family, and some of the economic advantages of a high standard, are touched upon. The article is decidedly sketchy in character, and no one point is exhaustively analyzed, yet it does open up many avenues of thought in connection with the standard of living.

Much emphasis has been placed upon the importance of maintaining a high standard of living. The question as to whether our standards of living, and especially those of the laboring class are decreasing under present conditions is raised in several articles. Hopeful observers, usually in the majority, noting the enormous increase in the production of goods which has occurred in the last century, and noting also an increase in wages, rest contented that the standard, if not improving, is at least holding its own. Others, with eyes upon the mounting cost of living, have seriously doubted whether there has been any recent improvement, and even affirm that the standard has been lowered.

Economists differentiate between "real" and "money" income. A knowledge of the money income of a family means very little until that money is translated into terms of goods and services which the family enjoys from the expenditure of it These goods and services constitute the real income. What the real income of the family is varies with many

[1] Hexter, M. B.: Implications of a Standard of Living. *Amer. Jour. Soc.*, v. 22, pp. 212–225.

factors, chief among which are money income, the prices of the articles for which the money is spent, and the capacity to expend money.

If, over a period of years, the income increases at a swifter rate than the cost of the goods for which it is expended, other things being equal, the standard will increase. If the amount of the income and the cost of goods increase at the same rate, no loss nor gain is experienced. But if the price of goods increases at a swifter rate than the amount of income, the standard of living must be modified or lowered, unless some way can be devised of meeting the increase in cost of goods. It is under such conditions that the problem of the cost of living usually arises.

The standard of living is thus largely determined by two variables—the amount of income and the prices of goods for which that income is expended. To ascertain the course of the standard of living of any group, it is necessary to know the amount of income received by the families in that group, and the amount, kind, and price of goods entering into the consumption of these families at different times. Obviously both kinds of data are difficult to obtain.

Attempts have been made to determine the course of the standard of living of working people by comparing the wages received in various industries with the cost of food for which the larger part of these wages is spent. This is because expenditures for food constitute the bulk of the expenditures of the ordinary family, and wages are the chief source of income for a large per cent of our population.

The federal government publishes data as to wages in specified industries, and the retail prices of certain foods in various parts of the country. Relative prices are computed for each article of food so that changes in the course of the price of any one commodity can easily be determined and followed. A relative price of any article is the percent which the price of that article at any given date is of the price of the same article at a date or period selected as the base, and considered, for purposes of comparison, as 100. Index numbers are then constructed to show changes in the course of the prices of a group of articles taken as a whole. The index number consists of a combination of individual commodity prices in such a way as to form a general relative price for a group of commodities. It may be either a simple arithmetic average, or a weighted arithmetic average, in which the more important commodities are counted more than once according to their importance in the consumption of the average workingman's family as determined by the cost of living study conducted by

the United States Bureau of Labor Statistics in 1901. For the years 1890–1907, the Federal Government published retail prices and computed index numbers for 30 articles of food constituting about 95 per cent of the total food expenditures of the average workingman's family in 1901. This was discontinued until 1912 when publishing of retail prices was resumed for 15 articles of food constituting about 64 per cent of the average workingman's expenditures for food in 1901. The data were obtained from a smaller number of cities and of retail establishments.[2]

In the December number of the *American Economic Review* for 1914,[3] Dr. I. M. Rubinow attempted to bring down to date (1912) the "index number of what might be termed real wages," which the government had discontinued publishing in 1907. Upon the basis of statistical methods explained in that article he came to the conclusion that the purchasing power of weekly wages as measured by retail prices of food, assuming the average real wage between 1890 and 1899 to be 100, had decreased from 100.2 in 1900 to 85.3 in 1912, a decrease of 14.9 points, and from 97.7 in 1907 to 85.3 in 1912, a decrease of 12.4 points or 12.7 per cent. His general conclusion was that the purchasing power of wages in 1913 was not much higher than in 1870. This conclusion was generally accepted by economists, although it was apparently contradicted by observation of the increase in comforts in the homes of workingmen. The increase in the number of women and especially of married women employed in industry and contributing to the family income, and the smaller size of the family were Dr. Rubinow's explanation of the apparent contradictions.

Mr. F. W. Jones[4] in an article in the *American Economic Review*, considers that Dr. Rubinow's conclusions are too gloomy. When the Federal Government in 1912 resumed the publishing of the retail prices of food, the new index was constructed on the prices of only 15 of the 30 articles formerly quoted. By the construction of new index numbers for the 15 articles quoted and the 15 articles omitted, he showed that the 15 articles quoted had increased in price at a swifter rate than those omitted, exaggerating somewhat the increase in the cost of food of the workingman. Nevertheless, while the situation may not be as gloomy

[2] See Retail Prices 1907 to December, 1914. Bulletin No. 156, United States Department of Labor, Bureau of Labor Statistics, p. 357ff.

[3] Rubinow, I. M.: The Present Trend of Real Wages. *Annals Amer. Acad. of Pol. and Soc. Sci.*, v. 69, pp. 28–33.

[4] Jones, F. W. Real Wastes in Recent Years. *Amer. Econ. Rev.*, v. 7, pp. 319–330.

as pictured by Dr. Rubinow, the author comes to the conclusion that real wages as measured by the retail prices of food entering into the budget of the workingman had decreased rather than increased.

Dr. Rubinow, in the article previously referred to,[3] calls attention to the continued decrease in the purchasing power of wages since 1912 as shown in a bulletin (No. 194) of the United States Bureau of Labor Statistics. The weekly earnings of organized labor had increased steadily from 1907 to 1915, but this increase was more than cancelled by the greater increase in the cost of food for which the wages are paid. This tendency is shown also in the wages of various specified industries, so that, very probably, the real wages as measured in the retail prices of food declined steadily until the war. What has happened since the war began is difficult to tell, but it is doubtful whether the abnormally high wages received in a few war industries or the decreased competition from immigration have enabled the majority of the American working men to regain what had been lost.

The preceding conclusions as to the course of the standard of living of the workingman are based upon a study of the purchasing power of wages earned by men, measured in terms of retail prices of food, and not upon the total family income. Professor Fairchild,[5] feeling that the question of the direction of the course of the wage-earner's standard of living is "too vital to be left to random guesses and rash assumptions," and that the orthodox view that the standard of living was improving is erroneous, arrived, by a different method, at practically the same conclusion as Dr. Rubinow and Mr. King—that we are not justified in believing that the standard of living of the workingman is increasing. Professor Fairchild believes that the increase in prices in recent years has affected different classes of commodities differently, being greater in the common everyday necessities of life, and least in the luxuries. His plan was to work out what he calls a standard budget consisting of a list of definite commodities of all classes of expenditure which enter into the actual budget of the ordinary family and constitute the bulk of wage expenditure. These he called necessities, all above being comforts and luxuries. After determining the cost of such a standard budget in the two years to be compared, the amount left for luxuries would measure the relative height of the standards of the two periods.

The articles of the standard budget were determined by Professor

[5] Fairchild, Henry Pratt: The Standard of Living—Up or Down? *Amer. Econ. Rev.*, v. 6, pp. 9–25.

Fairchild from a study of the actual budgets reported by workingmen's families in such standard of living studies as Chapin's, More's, Kenngott's, Nearing's. The data for these studies were collected about the year 1908. The standard family consisted of five people—father, mother, and three children under fourteen years,—living upon an income of $600, selected as the dividing line between skilled and unskilled labor earnings. The years compared were 1908 and 1890. He estimated the proportion of the total family income spent in 1908 for the various classes of necessaries as: food 48 per cent ($288), shelter 20 per cent ($120), clothing 12 per cent ($72), heat and light 6 per cent ($36), leaving 14 per cent ($84) for comforts. He then made up an estimate of the specific items included in each of the four divisions, which would require too much space to repeat. The cost of these items equalled the amount alloted for each class of necessities in the year 1908.

In ascertaining their cost for 1890, he used the index numbers for the retail price of food and found that the yearly food could be purchased for $226.72 as compared with $288 in 1908. In estimating the rent, which he had placed at $120 per year in 1908, he took into consideration observations as to the course of rents of himself and of others, scattered references in articles appearing about 1890, and the tendency for rents to increase with increasing population and with the increase in the cost of buildings and of upkeep, and decided that shelter which could be obtained for $120 in 1908 would cost $96 in 1890.

The cost of clothing in 1890 was arrived at by the use of the federal government index numbers of wholesale prices of a number of articles of clothing, which after all would overstate rather than understate the prices of 1890. The yearly budget of clothes costing $72.00 in 1908, amounted to $68.51 in 1890. The estimate of the cost of the budget allowance of fuel and light, based on index numbers of wholesale prices, was placed at $31.62. The total cost of the standard budget in 1890 was $422.85 as contrasted with $516 in 1908.

Since the standard of living depends upon two variables, it is necessary to estimate the income which the same grade of family receiving $600 in 1908 would receive in 1890, and the author concluded that this yearly income would be $500 in 1890. Subtracting the cost of necessities in 1890, $77.15, or 15.4 per cent of the total income remained to be spent for cultural wants, as contrasted with 14 per cent in 1908. This would measure the comparative heights of the standards of living of the American workingman in 1890 and in 1908. While such evidence is no proof of a

higher standard of living in 1890 than in 1908, yet it does support such a claim. At least, as the author says, it is strong evidence against "the right of anybody to assert with serene confidence that the standard of living of the American common laborer has improved in the past thirty years."

Thus while Dr. Rubinow concludes that real wages as expressed in retail prices have lowered, that if the standard has been maintained or improved it has been because of the increased employment of women outside the home, Professor Fairchild asserts from a study of the total family budget that it is questionable if the standard of living has been improved. It may be, however, that Professor Fairchild in estimating the total family income in 1890, did not make sufficient allowance for the smaller number contributing to it by employment outside the home.

Just what does this discussion of the course of the standard of living of the workingman's family mean to the worker in home economics—to the housewife? It shows that there are real grounds for serious doubt as to whether the standards of the majority of people are improving. It shows that the cost of living problem, in the sense that prices of goods for which income is spent have increased more rapidly than the income, has only been accentuated and not originated by the war, and is therefore not a temporary problem. Improvements in the standard of living can come about in two ways, (1) through increase in the purchasing power of the consumer, either because of increased income or cheaper goods or both, or (2) through the better consumption of goods, the result largely of the elimination of waste by the application of scientific and business principles in the home. Better and truer standards must be established, and home economics will play an important part in such an establishing.

Some idea of the increase in the cost of food which has occurred since the war may be obtained from the series of reports on "Retail prices of food in the United States," which appear more or less regularly in the *Monthly Review of the United States Bureau of Labor Statistics*. Monthly reports of retail prices of certain articles of food are received from a large number of retail establishments catering to the working class in various parts of the country. Relative prices are constructed for each article so that it is possible to follow the course of prices for each article reported.

Since the war, new commodities were added to the original 15, so that now quotations are given for 26 or 27 articles of food, and for all commodities combined in a simple arithmetic average. In this way it

is possible to follow monthly changes in the course of average retail prices of specified food articles and of all articles combined.

Caution must be employed in the use of the index number for all commodities combined. So many factors enter in to determine the cost of living that index numbers of the increase in cost must be used gingerly in specific cases. The index number of all commodities combined and weighted may be misleading. It assumes that there has been no change in consumption since 1901. Very probably with the increase in the cost of certain articles of food, many families—the majority of families—have either consciously or unconsciously modified their food habits to adjust to the increase in the cost of food. Newer and cheaper substitutes for old foods have entered into the diet of most families. Yet the basis of weighting for all commodities as given in the index number does not allow for this adjustment, since it is based upon the amount of the specified articles of food consumed in the average workingman's family in 1901. No changes can be made, of course, except upon another investigation.

An article in an English journal[6] illustrates this objection and brings out several problems of the cost of living. The Board of Trade of England has published each month since July, 1914, index numbers showing the increase in the retail prices of all the principal articles of food, and a general index number for all food, obtained by combining the different articles in the proportion to be found in the typical working class family budget.

If the Board of Trade index number says there is 50 per cent increase, does it mean that if the level of a pre-war standard is maintained, food bills of approximately all households will increase in that proportion?

The author found that among her friends of the middle class, with no obvious change in standard, the increase was less than that indicated by the Board of Trade index number, but that the cost for the working class families seems to have risen to a greater extent. The size of the income and the scale of living of middle class families before the war were such as to permit of modifications in diet to meet the increased cost without a noticeable change in the standard. This was brought about by the substitution of cheaper foods for the more expensive ones, or of cheaper for more expensive qualities of the same food. This, however, the poorer

[6] Woods, Frances: The Increase in the Cost of Food for Different Classes of Society since the Outbreak of the War. *Jour. Roy. Stat. Soc. Lond.*, v. 79, pp. 501–508.

classes find difficult to do, as there is less room or opportunity for variation or substitution and they, as a rule, are consuming the poorer quality of food. Again the author believes that when there is more than one quality of an article sold, the cheaper qualities have increased more rapidly in price than the more expensive. In some cases the Board of Trade gives an index number for the cheaper grades, but in most instances the index number is based upon the average prices for all qualities, thus showing the condition of the poorer classes as more favorable, of the middle class as less favorable, than they actually are.

A comparison of the prices of the cheaper cuts and grades of meat with those of the more expensive, illustrates this point. In England, foreign meats are less expensive than British meats, and since the war have increased in price much more rapidly than the latter. This is especially true of the cheaper cuts. The fact that part of the greater increase in price of foreign meats may be attributed to increased cost of ocean transportation, and part to increased demand from the army for the cheaper qualities and cuts, may serve to vitiate these conclusions as applied to normal times. The conclusion is that the increase in the cost of living since the war has fallen most heavily upon the poorer classes, on account of the greater increase in the cost of those articles which they consume, and because of their inability to meet the increase by variation in diet. Index numbers were constructed for various classes based upon the average prices of goods of the quality consumed by each class. A much greater increase than that indicated by the present index number occurred in the prices of the food which the poorer classes consumed, and a smaller increase for the wealthier classes. Index numbers are of value in showing the increase in the price of food for the country as a whole, as an average for the different classes of society, but cannot be accepted as representing at all closely the actual experience of any particular class of society, or of any particular individual. This is true also of the index numbers of the retail prices of food in the United States.

To be continued

MOBILIZING THE NATION'S CHILDREN FOR RED CROSS

ERNESTINE EVANS

American Red Cross

Twenty-two million American children went back to school in September. It was the end of a vacation not like any other summer of their lives. They returned to school with a spirit not like anything that the oldest of them can remember. There are—there cannot help being—soberer young faces bending over books in the little red school houses of the rural counties and the imposing stone technical high schools of the great cites, for this winter will find the fathers and brothers of many of these children in the cantonments of the National Army.

The old and the young are learning their new lessons together. In the school rooms children are begging daily for a chance to help, while teachers, with a new enthusiasm, are asking what they can teach to make the fittest citizens for the new America.

The Junior Red Cross is an answer to a great need. For months and months, in may places for three years, children have been at work. Sometimes in little scattered groups, the young girls watched their mothers sew for the Belgian refugees or knit for the poilus of France and the soldiers of Princess Pat, while they picked up the threads and undid the bastings, and held the yarn. Sometimes they made collections for the Christmas presents of "our little sisters and brothers over there."

Last year, all over the country, under the auspices of the Red Cross Chapters, or under the guidance of the schools, an outlet was found in work for the hundreds of thousands of busy helpful little fingers and overflowing hearts. What was done not only served as an expression of the impulse of thousands of children to help, but enormous boxes of supplies worth many thousands of dollars were dispatched abroad. They were of excellent workmanship, often equal to anything that the mothers had made. As a single instance nearly seven hundred hospital garments and bandages were made last spring by the girls of the Saunders Trade School in Yonkers, New York.

The New Junior Red Cross, based on that experience, now makes it possible for schools everywhere to undertake a share in the Red Cross task. Dr. H. N. McCracken, President of Vassar College, is devoting himself to the nation-wide adoption of the plan recently approved by

the Red Cross War Council. There is to be a Junior Red Cross membership open to all school children in schools, public, private, or parochial, in the United States, the Philippines, Alaska, and the Canal Zone.

After membership has been granted to a school, and a sum for dues equal to 25 cents for each pupil has been deposited with the local chapter School Fund, the school can fly a Red Cross flag, and its students each wear a Red Cross membership pin. Some discretion is allowed the local chapter school committee in administering this requirement, for it is not intended that any school shall be excluded if it finds the membership dues difficult to meet.

In general matters, of course, the school authorities will coöperate with the local Red Cross Chapter, but the principal of the school will be the Chairman of the Red Cross Auxiliary that has been formed in this manner. It will be left to the teachers and pupils to find the best way to work for the cause of the country's army and navy. The school must always do work that comes up to the Red Cross standard of acceptance. Whether the school is organized by grades or classes as a single group will be a matter for each school to decide.

Few people realize how much has already been done. In Chicago, where for a great many months patriotic spirit has been high and practical among the younger generation, the children last year made so many kinds of things that the result is a thrilling story. Only lately they sent 700 ration heaters in a set of comfort kits made by their mothers and aunts for the men in the Alpine trenches where coal was scarce. They have rolled newspapers, boiled them in paraffin, and cut them into candle lengths. For months they have been making little woollen afghan quilts for the refugee babies and toddlers of Belgium by knitting 5-inch squares and sewing these together, five one way, and six the other. These are not all they have knitted. Many a young girl who used to triumph at jack stones and jumping double Dutch has put away a skipping rope, and turned her nimble young fingers to work on gray and khaki mufflers for the bluejackets who are now training at the Great Lakes Naval Station for U-boat catching in the icy North Atlantic, or for the men at Fort Sheridan who are to go with the winter transports.

Last spring boys in one school in Evanston, Illinois, made hundreds of knitting needles and shellacked them. They also used their scroll saws to make bass wood splints—invaluable in French hospital work. Many of the smaller boys served as errand boys in the local Red Cross Chapter rooms. Older boys rolled bandages, and younger ones made fracture pillows and filled them with oakum moss.

One boys' school in the Adirondacks has begun to collects phagnum moss for hospital pads, and their botany teacher has gone with them into the woods to identify this absorbent moss that has been used so often in British hospitals these last two years when cotton has been scarce and high. So far, much of the best work has been done in the domestic science departments of the high schools and grammar schools, where, under the supervision of the sewing teachers, girls who used to make endless princess slips and the like for themselves have learned to make fine seams and buttonholes and to cut their patterns accurately while manufacturing the bed shirts and pajamas for a base hospital in France.

Several New York schools made arrangements last spring for a special Red Cross sewing hour which took the last half hour of regular school time and a volunteer half hour of work on the part of teacher and pupils after dismissal time.

In Buffalo, New York, last spring, 1600 garments were made by the eighth and ninth grades. In Troy, the children earned a thousand dollars from entertainments, and promptly put it all into Red Cross supplies. One of the Troy Red Cross Chapter workers interested in membership afterwards said: "You have no idea how the children's enthusiasm made things easier for us. We came to parents to whom the Red Cross was no new thing. Their children had already made them members in spirit."

The new Junior membership will make it possible for the spirit of America's youngest and truly generous generation to make itself felt in the trenches. Their names and their messages will go in Christmas parcels, Red Cross made and Red Cross forwarded, and every message will be like a sprig of cheerful home holly, to the soldier who opens the package. Besides, garment making will serve a double purpose; it will help the Red Cross and stimulate a new spirit of workmanship. This will constitute vocational instruction of the highest order.

The 22,000,000 new workers for the American Red Cross are, after all, the members that count the most. They are the future of America.

Writing of the new Junior membership to Mr. MacCracken, President Wilson said:

> If you have an opportunity will you bid the young people, whom you are assembling in this organization, a very warm welcome from me and give them a message of the heartiest good cheer as they enroll themselves among the servants of the nation and of the people everywhere who need help and comfort and encouragement?
>
> I think they will all look back upon this work they are undertaking as a happy circumstance of their school days.

EXTENSION WORK IN MILL VILLAGES

MARY E. FRAYSER

Formerly State Agent for South Carolina

Home economics extension work, in operation in the cotton mill villages of South Carolina, parallels that of the home demonstration work in rural communities. The mill village instead of the county is the unit of organization, and the social worker is a community agent.

There are twenty cotton mill villages in South Carolina organized for community improvement, each working under the trained leadership of a local worker, and under the supervision of a State Agent for Mill Community Work. The work is home economics in the broadest sense, for it seeks to conserve the home through reaching and training the individuals who compose it.

The work began in 1915, under the supervision of Winthrop and Clemson Colleges and the United States Department of Agriculture. According to their coöperative agreement, $100 per year was offered to each mill village which would bear the rest of the expense incident to the work, i.e., the balance of salary of the local worker, and the maintenance cost of the work, from $800 to $1200 per year. In nearly every instance this sum was given by the mill management. Sometimes individuals contributed. In two instances church guilds financed the undertaking. In one village the mill operatives formed an organization, and their dues paid a portion of the salary of the social worker.

In every instance the mill president has given quarters for the community work. This building is the center of the social life of the village. Whenever possible, it is the geographical as well as the spiritual center. Some of these buildings have been planned and erected for the purpose; others are just remodeled mill cottages. All contain a reading room, a room for in-door games, and a kitchen laboratory. Some also have a dining-room, a big auditorium, a dispensary, a dental room, a swimming pool, and shower baths.

However finely conceived the plan for mill village improvement may be, it is impossible to put it into operation without the interest, good will, and financial backing of the mill management. The mill people are not yet self-reliant enough to take action. They do not understand coöperation. The organization of mill villages in the South is still feudalistic. The state should, and soon will, incorporate the mill towns,

and the people will learn the principles of local self-government. This work is planned to make the people ready for that day and to help them to bring it to pass. It is constructive. Its purpose is to draw the people into the full current of life, to quicken their spirits, to make them feel that the opportunities of life are for them as well as for another, and lastly to give definite instruction which will increase the efficiency of the individual, and improve the status of the home.

It is possible to undertake work along a good many lines and still do it intensively, since each agent's activities are confined to one or two villages, and but little time is lost in getting to her group. Usually she lives among them. These young women work *with* the people and *not for* them. The agent is "a promoter," a promoter of activities that are worth while, and an inducer of the "get together" spirit. It is not easy to find the right woman for this work; but she can be found, and her enthusiasm and consecration grow as she stimulates growth in others.

School children, mill girls, and grown women are taught home making. This summer, at each of the centers, garden products were canned by the people under an expert. Much of the responsibility for community improvement may be thrown upon groups drawn together for such practical purposes. It is interesting to watch the awakening which attends the study of "What foods shall I give my family for breakfast, dinner, and supper today?" A new club member of one of these organizations was asked last year to submit a menu for Thanksgiving dinner. Her choice was candied yam, rice, creamed white potatoes, macaroni, a roast, and bread-pudding. Some one showed her the error of her way. But it is line upon line and precept upon precept!

Many of the adult members of mill villages are illiterate. Some of the "teen" age also are illiterate. Dr. Curry once asked a southern parent, "Why do you not send your child to school?" "We of the South are too poor to send our children to school," was the reply. "We of the South are too poor *not* to send our children to school," was the eminent educator's response.

If there is no night school in the community, the local agent coöperates with the school authorities and mill management to open one, and teaches in it two nights a week for six months a year. During the time she teaches, she is amenable to the school authorities. If there is a night school in operation when the organized work is begun, she lends it her moral support. She knows just how many children there are in her village who ought to be in the day school, but are not. She knows, too, the number eligible for night school.

The community agent organizes the people for recreation. A play-ground with some equipment is furnished by the mill management. Much that is fine results under the heads of health and team spirit. It is inspiring to see the play-grounds on a Saturday afternoon, or at night during the open season.

The community worker arranges night meetings at which topics of current interest are discussed by able speakers. People engaged in a part time process, endlessly repeated, requiring no initiative, are apt to think in a dull round. To get such interested in what others are thinking of is worth while. That many of the young men are going into the army and navy is serving to link the interest of the village folk with world wide affairs. The growth that came to some of those who went to Mexico was wonderful.

The cotton mill village people are "country people come to town." They sinned against the laws of sanitation in the open country, where, perhaps, they did not pay the price; but in a big group the individual or the other fellow must do so. In some counties in South Carolina, there are no county health officers. In cases of contagious or infectious diseases, there is no one to enforce isolation of the patient and family. The community agent gets the mill management to coöperate and wins the people's trust so that they will be guided by her. To show the mother what to do and how to do it, she must have had a course in home nursing.

There are clean-up days and lessons in civic responsibility taught through the children's organizations. There are Boy Scouts and Camp Fire Girls. The community agent does not lead all of these groups; she interests people capable o helping, and she develops leadership among the villagers.

In each of the twenty villages there was observance of Baby Week in May. In many instances there was examination of the children by competent physicians, and instruction of the mothers concerning their care. The community agent sought and won the coöperation of the women of her village, of the physicians and trained nurses necessary, and afterwards *followed up* the work.

A community laundry is a goal to be achieved. The mill women do the week's wash in the yards at all seasons, and boil the clothes in a black iron pot, set up on bricks, with fire beneath. Two mill presidents are considering the installation of laundry equipment, with the delivery of the clothes rough dry as a beginning.

The Community Fair is the community event of the village calendar. Specimens of work done in class and independently are exhibited. Household relics, flowers, vegetables, canned products, pickles, preserves, cakes, bread, homemade fireless cookers, iceless refrigerators, and baby beds, all these and much else are shown. Perhaps the quilts are most typical, so many there are, and of such varied patterns.

The interest of the day centers around the addresses and our-door athletics, and reaches its climax at the barbecue. A fine social spirit pervades the group. Everybody is happy. The community worker looks on with tired but grateful eyes. She knows that a little of her dream has come true.

Once a year the young women who are serving in the mill villages are called in to Winthrop College for a short course in social service. This class instruction and conference are invaluable. It is proof of the interest of the mill presidents that they permit these young women, engaged because they are trained workers, to come for two weeks without sacrifice of pay to secure further training.

EXTENSION WORK[1]

HENRIETTA CALVIN

Specialist in Home Economics, U. S. Bureau of Education

The extension work as I see it over the country has made me feel there is something started that is the greatest educational effort that has ever been undertaken in the United States.

In the South there are nearly 1000 women who are devoting their entire attention to 15 southern states. They have in South Carolina 45 county agents. Sometimes there are three county agents in one county, headed by a supervisor; in some counties they have 85 per cent of all the white women in the county. A woman is a "home demonstrator" when she stays at home and demonstrates newer methods of doing her work. The county agent gives them topics and meets with them.

[1] Part of the discussion of Extension Work at the meeting of the American Home Economics Association held in connection with the N. E. A., Portland, Ore., July, 1917.

When those southern agents get together and tell how many homes have been screened, how they have campaigned for running water in the houses, for fireless cookers and iceless refrigerators, it seems to me that is a very wonderful work for anyone to enter. It is hard to find the right people for county agents. They must know their subject, must know the practical application of it; they must have the wisdom of a serpent and the harmlessness of a dove, be diplomatic as ambassadors, have unlimited health, and a willingness to give themselves body and soul. Besides these qualifications they should have a reasonable ability to speak to a group of people; and when they have all of these, the Extension Service is a wonderful opportunity for teaching.

County agents down South are brought into a county by club women, who camp on the trail of the county officers, and do not rest until they induce the county officers to put in a county agent, or wish they had.

The county agent generally has an office where she can meet people when they come to town, where they can bring their problems to her, or call on her for assistance; she meets with a new group of people every day, and plans demonstrations, receives reports of demonstrations, or renders any form of service possible.

THE HOME GUARD

FLORA G. ORR

University of Wisconsin, Class of 1916

"I don't like to leave home," said Sergeant Sugar doubtfully. "After all, they depend pretty much on me over here in the United States."

"Don't be a Slacker," admonished Lieutenant Lard.

"No time to argue, boys, forward march!" came the sharp command from General Wheat. "Off to France—but halt—what's the matter, Sergeant Sugar?"

"The children are so fond of me, General, I don't see how I can get away."

"Do you boys imagine for a minute that you are leaving the folks at home without any protection? How about it? Did you think that, Major Meat?"

"I didn't exactly think that, sir," came the cautious reply.

"Attention! Do you see that encampment to the right?" "Yes, sir!"

"That encampment is only one of several hundred squadrons which we are leaving here. Enlisted in the Home Defense League is General Milk, known throughout the world, probably one of the ablest military-food experts in the world, absolutely unsurpassed for efficiency. He is a man of somewhat your type, Major Meat.

"Then there is Colonel Corn. Colonel Corn is a fellow who has been hiding his light under a bushel. Ha! Ha! Yes, everybody in the South has known him for years, I know, but why his fame didn't spread up North I can't understand. I can tell you I have absolutely no compunctions about leaving home when I know I'm leaving a fellow like Corn to look after things.

"Now, just a word to you, Sergeant Sugar. Ever heard of your superior officer, Major Molasses?" "Yes, sir, but—"

"No 'but's', Sergeant. I want you to know that Major Molasses is a fellow who can fully as well look after the sweet teeth of American children as you can, Sergeant." "Yes, sir."

"After all the Syrups and Honey—and Molasses represents all of them—are just as sweet as sugar, Sergeant." "Yes, sir."

"Very good. Perhaps you'd like to hear the names of some of the other officers. Major Meat, you may be interested to know that Captain Cheese and Lieutenant Fish are ready to carry on quite a bit of the work which you must necessarily leave when you go to France.

"And then there's Sergeant Spud, who is going to be able to do a great deal this winter. He's what I call a good officer." "Yes, sir."

"There's a young Corporal in the Home Defense who'll do a great deal of what you might do if you could stay, Lieutenant Lard."

"Who is that, sir?"

"Corporal Cooking Oil. He's one of the Vegetable Fat family. I understand that your family used to consider yourselves somewhat better than the Vegetable Fats, eh Lard? Well, war is a great leveller. I imagine the young fellow will be giving you a good run for your money before long. Well, boys, you see you're not quite so important after all. And it's on to France, is it?" "It is indeed, sir!"

"To the front then! May fortune bless our voyage! Forward March!"

CONSERVATION IN THE LUNCH ROOM

In view of the wide spread interest in elimination of waste, and the necessity for some radical changes in food habits to meet the demands for conserving wheat, meats, fats, and sugar, the following report by Miss Maud Parsons, Director of the lunch room of the Household Science Department of the University of Illinois, is of interest:

We serve the noon meal to an average of 290 people, students and faculty, cafeteria style. The average check is 24 cents.

The prices are:

Meat, fish, and oyster dishes, 10-15 cents	Bread, 1 cent
Vegetables, 5 cents	Butter, 2 cents
Desserts, 5 and 7 cents	Oleo, 1 cent
Salads, 5 and 10 cents	Nut Butterine, 1 cent

It is interesting to note that the meatless day, Wednesday, has led to no diminution of attendance. In fact various people have remarked that the menus for that day were especially attractive. Fish has been served regularly on Tuesdays and Fridays. Oysters, chicken, or eggs have been served on other days, or with meat.

As regards the wheatless meal, the patrons have seemed to enjoy most a rye bread in which two parts of wheat flour has been replaced by rye, though corn bread, corn muffins, and fried mush are used very often.

Special care is taken to have all the food well cooked, and special care is given to the "substitutes."

The results from the standpoint of waste have been most gratifying. The total from 290 plates, exclusive of milk bottle tops, baked potato skins, or baked apple skins, is about 1 gallon per meal, or 1 spoonful per person.

It seems to us entirely possible to greatly reduce the amount of waste in hotels and restaurants if care and coöperation can be secured.

If all the world looks drear perhaps the meaning
Is that your windows need a little cleaning.

—*The Youth's Companion.*

FOR THE HOMEMAKER

THE TIME NECESSARY TO DO THE WORK IN A SEVEN ROOM HOUSE FOR A FAMILY OF THREE

MARY ROWE

Stevens Point Normal School, Wisconsin

The house is in a middle west town with a population of 18,000. The town has several large factories, a paper mill, and two large foundries; so there is much smoke. There are two railroads. The house, however, is seven blocks from the nearest foundry.

The street is paved with brick and is washed and swept clean every week. It is a busy street since it is the most direct road to the country and is near the business district. The neighborhood is one where nearly everyone owns his house and is proud of his well kept lawn. The spaces between houses are generous.

The house is well built. It is not, however, very conveniently arranged in rooms since the way from kitchen to front door is through dining room, living room, and hall, and the pantry and cup-boards are in the wrong places. There are a large living room, dining room, bedroom, bathroom, kitchen, hall, and laundry on the first floor, and two large bedrooms on the second floor.

The floors were all in 6 inch pine but they have been covered with maple on the first floor, while they are painted on the second. The windows are double sash, single pane, and equal to one-sixth the floor space. The wood work throughout the house is painted. The walls of kitchen, bath, and one bed room are painted; the others are paper covered.

The house is heated by a furnace using the hot air system, is equipped with gas stove, electric light, and city water, and has sewer connection. A cistern with pressure tank in basement and a coil in the furnace supply hot and cold soft water to the kitchen and bathroom in winter; in summer the water is heated with gas.

There are not many labor saving devices in the laundry—only a washing machine which the man of the house runs. An electric iron is used in the ironing.

A fireless cooker which uses hot soap stones is a time saver in the kitchen, and a small bread mixer is considered a necessity. All the baking is done in the house since they do not like baker's bread and other bakery products.

The furnishings of the house are such as may be easily cleaned, with very little upholstered furniture, and rugs covering the floors.

Through experience the mother learned many ways of saving time in the work. Dishes were wiped with paper (especially when greasy), sorted, and piled, then washed in hot suds, rinsed in boiling hot water, and drained. Very little wiping was necessary. Whenever possible the fireless cooker was used, especially for the sake of saving time in the watching necessary when the gas stove was used. It was even used to keep the bread sponge warm. The bread mixer was set in the open fireless cooker in which was one of the soapstones, heated just enough to keep the chamber about the right temperature. The top of the mixer was covered with a clean cloth and blanket and there it was left till the bread was light and there was no worry about drafts or over heating.

Time for housework

	HOURS	MINUTES	HOURS PER YEAR
I. Work done twice a year			
Maple floors redressed	4		
Woodwork and papered walls cleaned	3		
Kitchen walls washed or painted	3		
Bathroom walls washed or painted	2		
Cleaning mattress and bedding	3		
Cleaning furniture	3		
Cleaning basement	3		
	21		42
II. Work done once a year			
Painting by man of house	3		
Painting by decorator	4		
Spring cleaning and packing of woolen and fur	4		
	11		11

	HOURS	MINUTES	HOURS PER YEAR
III. Work done once per month			
Rugs taken to yard and beaten and re-laid	2	15	
Windows cleaned on lower floor	2		
Windows cleaned on upper floor	2		
	6	15	75
IV. Work done once a week			
Floors and furniture dusted	1	30	
Rugs		40	
Kitchen cleaned		30	
Bathroom		30	
Bedroom changing beds, etc.		25	186
Laundry			
Sorting clothes		15	
Running machine	1		
Boiling, rinsing, hanging	1	30	
Cleaning laundry		20	
Ironing	2		
	5	5	264
V. Work done each day			
Cleaning, etc.			
Bed making, 3 beds		15	
Floor, dusting furniture		30	
Kitchen		15	
Bathroom		10	
	1	10	426
Cooking			
Breakfast (cereal cooked in fireless)		20	
Dinner	1	15	
Supper		30	
	2	5	760
Baking			
Bread, twice a week, average daily		25	
Cake, cookies, desserts, etc. average daily		35	
	1		365
Dishes			
Supper and breakfast together		30	
Dinner, including baking dishes		40	
	1	10	426
Tending furnace (⅓ year) daily average		10	
Pumping pressure tank		5	
		15	91
Total for year			2646

This is equal to an average of seven hours per day for the year.

The family consists of three adults. The man of the house is a retired farmer and uses his surplus energy in supplying motive power for the washing machine, pressure tank, and furnace, besides acting as scrub woman in cleaning windows, rugs, floors, and paint. He uses the method learned through years of successful farming in doing the work in this home. For example, he keeps account of the time necessary for work and much of the data used in this article comes from his time book. In spite of his seventy-six years he can do the work much more quickly than any charwoman we have ever tried. This is especially noticeable in cleaning windows and rugs.

The time given for the laundry work is as near an average as we could get, since in summer when more starched clothes were worn the ironing took longer than in the winter. The washing occupied the same amount of time, because the time and care needed for the woolen clothes worn in winter balanced the extra time used for the summer dresses. Underwear, bath towels, and such things are not ironed either summer or winter.

For a month in August a four year old granddaughter and her mother were added to the family. During this time the washing took about half an hour longer and the ironing an hour longer. This item would have been larger if the child had not worn dark colored rompers in her play in the morning and thus saved the multiplication of white petticoats and dresses.

For the rest of the work there was about half an hour for extra cooking and dishes and a few minutes for the extra bedroom.

A dozen years ago when the family took the house there was no furnace, gas, or electricity. The street was unpaved. There was a tub in the bathroom but no other fixtures. There was city water, and a small cistern which had a way of running over into the basement when full and of being empty except when there were frequent rains. The house drain emptied into a cesspool. The floors in the kitchen and dining room were maple, but the others were unfinished pine badly stained, and showing such cracks that they had to be covered. Paint was tried but after a few years maple floors replaced the pine.

The many automobiles passing stirred up such clouds of dust from the street that it was impossible to keep the house free from it. The kerosene lamps took about half an hour to clean each day. Since there was a base burner in the living room and a coal range in the kitchen much time was required for the carrying of coal in and ashes out, and for cleaning up the dust and litter made. This meant perhaps an hour a day.

Now a new and larger cistern with a pressure tank connected with the hot water tank provides hot soft water as well as cold in the bathroom and kitchen. This saves the time it used to take to keep the reservoir on the range full of soft water, and does away with the bother of pumping.

The house mother says that formerly it took one and one-half to two hours longer each day to do the work than now and it was not done so well.

THE NEW NOTE IN THE MAGAZINES AND BOOKS ON HOUSE FURNISHING

LEONA HOPE

University of Illinois

Much has been delightfully written about house furnishing, but it has dealt principally with the homes of the rich. We of moderate means have gazed with admiration, and possibly some envy, on pictures of this wealthy man's splendid Jacobean dining-room, on that one's stately Italian Renaissance library, and on another's exquisite Louis XV drawing-room. But, while the pictures and descriptions have pleased and entertained us, we have been left with a feeling of helplessness as far as aid in the furnishing of our own modest little home was concerned. Imitation is out of question. We can never hope to achieve the pictured beauty of these splendid shows of priceless furniture, tapestries, and rugs with our plain oak table, Morris chair, and drugget. Moreover, if imitation were possible, we should not care to avail ourselves of the opportunity. Imitation lacks the vital personality which makes one's home a part of one's self. Therefore, many of us have sighed and reconciled ourselves to things as they are, feeling that our humble surroundings were entirely unworthy the consideration of artist and interior decorator.

However, a change is taking place. Especially within the last year or two books and magazines on the subject of house-furnishing have ceased to be mere descriptions of Mr. So-and-So's palatial hall with its Florentine table and chairs and bit of French tapestry. Instead, the attention has been called to the beautiful balance with which the table, the chairs,

and the tapestry have been arranged. If there are any of us who do not know what balance is, we can go to the dictionary or to some book on design. At last we have something tangible. I find that my simple hall furniture can be arranged with just as perfect balance as the most rare and costly. I am pleased to discover that a large part of the beauty of the room is in the arrangement; that a furnished room is not merely a collection of furniture; that the house is a design, a design governed by the same principles as those which have made a painting by Raphael or a building like the Parthenon a joy for all time. Ignorance of the principles of design and of their application to house furnishing has been the cause of this helplessness among women who have been obliged to be their own interior decorators. And these women are the vast majority. I congratulate the woman who with fifty dollars can furnish her living-room with beautiful Colonial mahogany found in barns and in attics, here, there, and everywhere. We, the great majority, have not time to scour the country for "finds." And, if we had time, the craze for old furniture has left the country so completely scoured that our quest would probably be in vain. Of vastly greater importance to us is the recent article in one of our magazines which tells how to buy furniture; that good constructive design—fitness to purpose, excellent workmanship, fine proportion, good material—is the essential feature; that the purpose of decoration is to enhance, strengthen, or emphasize the construction, and that beyond this point decoration ceases to be desirable.

This new note in the articles and books on house furnishing will effect great changes in thousands of homes where imitation and the word of the salesman are at present the deciding factors. It gives us the fundamental principles which enable us to be the doctor rather than the apothecary. When I place my rugs parallel with the lines of the room I wish to do so because I thus consciously establish harmony, not because I have been told to do so—which I do not consider a reason at all. A wider dissemination of the knowledge of these fundamental principles of design to house-furnishing is the need of the small home. And a trend in this direction, it seems to me, is the most salient feature of the recent books and magazines which deal with this subject.

As to color, just at present many of us are living in "brown ambiguities." We are timid about using black and white, magenta, and peacock blue, which our color-loving friends are advising. We are more comfortable with a bromide than a horror. With black and white, magenta, and peacock blue most ravishingly beautiful results may be obtained,

no doubt; but they are achieved only by the person with trained taste and accurate eye. I know that in color rules are of no use except, to quote Ruskin, "as preventatives of gross mistakes." Yet I do hope that something a little more definite and fundamental in the application of color to our homes will be given us soon. *House and Garden* for October has given us "Thirty-six Facts About Color." To quote poor little Oliver, "More please."

A FEW BOOKS AND MAGAZINES SUGGESTING "THE REASON WHY"

Interior Decoration, Its Principles and Practices, Frank Alvah Parsons.
House Furnishing and Decoration, A. McClure and H. D. Eberlein.
The Decoration and Furnishing of Apartments, B. Russell Herts.
Planning and Furnishing the Home, Mary J. Quinn.
Interior Decoration, Amy L. Rolfe.
Costume Design and Home Planning, Estelle Piel Izor.
Good Taste in Home Furnishing, Maude Anne Sell and Henry Blackman Sell.
Inexpensive Furnishings in Good Taste, Ekin Wallick.
The New Interior, Hazel Adler.
Inside the House of Good Taste, Richardson Wright.
The House Beautiful. *House and Garden.* *The New Country Life.*

A MESSAGE FROM HENRY VAN DYKE

A RED CROSS CHRISTMAS TO THOSE WHO FEEL POOR

I write as a brother. We are a large family.

This world war made in Germany against which we are fighting has sent our incomes down and our expenses up.

The pinch hurts, but it is not going to kill us.

We still have enough and something to spare.

Though we feel poor, don't let us be impoverished by selfish fear.

Let us save in food, in service, in clothes, in luxuries, but not in money.

Let us use it by giving it to save the wounded, the suffering, our friends, our country.

Let us keep Christmas this year by keeping up the Red Cross.

Then it will be not a poor Christmas, but a rich Christmas in our hearts.

—*The Red Cross Bulletin.*

CHRISTMAS IN WARTIME

A wartime Christmas—what does it mean to us and our home? For three years we have been stirred by the needs of the world, by those who are perforce doing without the comforts, the necessities, the essentials of life. Every penny we have spent for ourselves has been questioned, we have wondered whether we had any right to give to our family or our friends or those not in dire need, whether we had any right to be happy.

Today it is harder than ever before to say "Merry Christmas," for the war has come home to us and we know even more vividly its terrible meaning. Yet the true spirit of Christmas is still here and must be fostered—the spirit of service and cheer, of thoughtfulness and consideration, of giving without asking return, even the spirit of joy.

Children should not be denied their Christmas gifts or the privilege of giving to others whom they love, but a gift of equal value should be sent abroad for each one given at home. Nor should grownups or children forget the home poor or their accustomed charities.

A worthwhile Christmas gift is one that helps someone else to give also. There are many who would gladly knit or do other work if they could afford the material. By giving this we double our gift.

When it comes to the Christmas celebration let us be sure that while we have the happiest time possible for the children we do it in such a way that it means no sacrifice for any one else. Let us take care in planning the dinner that we use only what is not needed abroad. Go without the pastry that takes the fat for which people are starving, choose fruits and nuts, and use those that involve the least amount of transportation. Have in place of the usual candies only those made with molasses or syrups, or sweetmeats from dates, raisins, figs, and nuts, dipped in chocolate if you choose, or use pop corn made into balls with a little boiled molasses or maple syrup. Use chestnuts or something beside white bread for stuffing the turkey or chicken or use a goose with its apple or onion dressing. With France calling for wheat we can hardly use it for Christmas when we know that we have already sent all our surplus, and that we must save the rest she needs.

Have plenty, but think back to your past dinners and see if you have not had too much. Break traditions if necessary, for the sake of others.

Above all let the children share in your planning. Any sacrifice they make should be their own, not forced upon them from above.

We ask for everyone Joy, Happiness, Peace. Let us claim them for our own households.

EDITORIAL

The Journal's Christmas List. The JOURNAL OF HOME ECONOMICS extends Christmas Greetings to its readers. It hopes that this December number, with its record of work done during the year, may be acceptable to you as in one sense a Christmas gift from the contributors who have given freely their time and experience that this information might be available for you. And the JOURNAL is so bold as to ask from you a Christmas gift for itself. Here is its Christmas list.

WANTED:

Some two page articles—bright, interesting, worth while.

Some four page articles—so well written that everyone wishes they were longer.

Many news items—short, telling just what every one wants to know.

SUBSCRIBERS—*10,000* of them.

Not for selfish reasons does the JOURNAL want all these gifts but that it may be of greater service to more people.

The War Emergency Food Survey. The United States Department of Agriculture is conducting a War Emergency Food Survey that should result in bringing together a mass of material, far more than has ever been collected, to show what people really do eat. We have been accustomed to speak of the "food habits" of a nation, but so far many of our judgments have been based on mere surmise. The data gathered in this survey in regard to food consumption and waste in families and in larger groups known as institutional households will change the more or less rough estimates, hitherto made, into conclusions based on concrete facts. All sections of the United States, rural and urban, all type of families, and all ranges of income are to be included.

Special blanks have been prepared on which may be recorded the food consumed and the refuse and waste for one week.

In order to have the whole country participate in this survey, the Heads of College Departments of Home Economics have been asked to help by placing these survey blanks. It is hoped to enlist the aid

also of the Extension Workers throughout the country and of Social Workers. Coöperation has been most freely pledged and an encouraging interest in the study expressed.

The number of studies received before the middle of November was 204 and the number promised 2091.

Anyone who will assist in carrying on the survey by placing either the family or group survey blanks may procure these blanks by writing to the Office of Home Economics, United States Department of Agriculture.

Home Canned Food and Botulism. The following statement prepared by the bacteriologists of the Bureau of Chemistry and the States Relations Service of the Department of Agriculture emphasizes over again the need of exactness in following directions, as well as the precautions that should be taken to insure the use of only food that is in good condition. When this care is taken, there should be no need for fear.

There is no danger that the type of food poisoning known as "Botulism" will result from eating fruits or vegetables which have been canned by any of the methods recommended by the United States Department of Agriculture, provided such directions have been followed carefully. Of course, extreme care should be taken to ascertain before eating canned goods of any kind whether they are in good condition, and if they have spoiled they should not be consumed.

In case of any doubt as to whether the contents of a particular can have spoiled, the safest plan is to throw it away, although all danger of Botulism may be avoided by boiling the contents of the can for a few minutes, since the *Bacillus botulinus* and the toxin or poison which it produces are killed by such treatment. No canned food of any kind which shows any signs of spoilage should ever be eaten. In the cold pack method of canning given out by the Department of Agriculture, only fresh vegetables are recommended for canning, and sterilization is accomplished by the following processes: cleansing, blanching, cold dipping, packing in clean, hot jars, adding boiling water, sealing immediately, and then sterilizing the sealed jars at a minimum temperature of 212° F. for one to four hours, according to the character of the material. Since the spores of *B. botulinus* are killed by heating for one hour at 175° F. (according to Jordan's "Bacteriology" and other recognized textbooks) there is no reason to believe that the *botulinus* organism will survive such treatment.

BOOKS AND LITERATURE

Any book or periodical mentioned in this department may be obtained through the JOURNAL OF HOME ECONOMICS if the Journal price is listed.

The Charity Visitor: a Handbook for Beginners. By AMELIA SEARS. Chicago School of Civics and Philanthropy, new and rev. ed., 1917, pp. 69. Paper, $.50. By mail of the Journal $.54.

"The Charity Visitor," as Miss Sears states in the preface, "is based on the verbal and written instructions relative to the technique of investigations which for years have been current in the offices of the United Charities of Chicago and which are elaborated and assembled here, at the friendly suggestion of the directors of the Chicago School of Civics and Philanthropy, primarily for the use of students." It is doubtful if a home economist should do much investigation when working independently of a social organization and without access to definite information from some outside source concerning the situation in a family, but there is no doubt that a home economist should be familiar with the nature of information available from any well-organized social agency, with the purpose and reason for investigation as interpreted by the case-worker, and with the form of office record keeping which has proved most satisfactory through many years' use. This information is clearly and interestingly presented in "The Charity Visitor," and the entire book should prove valuable to the home economist interested in dovetailing her efforts with those of other social workers, and also in profiting by their experience.

Practical, helpful material on the family budget is so limited in amount that home economics teachers as well as social workers should welcome the suggestions and data contained in the chapter Estimating the Family Budget, prepared by Miss Florence Nesbitt, Field Supervisor of the Aid to Mothers Department in the Juvenile Court of Cook County, Illinois. This is a summary of conclusions based on her long experience in not only estimating family budgets but also supervising them and testing their accuracy and value in actual use. Miss Nesbitt's experience is a unique one, and although her discussion in this instance is very closely connected with charitable relief giving, much of what she says is equally valid with reference to the budget of the self-supporting family.

One of her important points is that the figures in a family budget should be definite and concrete and always interpreted according to their buying power in the particular locality.

In the presentation of her schedule Miss Nesbitt therefore gives a brief descriptive summary of what would be considered by almost everyone as the minimum normal standard of living with respect to food, housing, clothing, household supplies, and the other customary budget divisions, with specific figures of costs for each of these divisions, and detailed estimates of the items.

Miss Nesbitt objects to the use of the unit system in estimating food costs, especially for young children. "While this cost of $2.10 per man per week can be used as a measuring unit for the members of the family who can be given the same kind of food eaten by the man, it cannot be so used in calculating the cost of food for small children. The infant may require only 1200 calories, or one-third the amount of food of the working man. But it cannot be fed at one-third the cost, without endangering its health, development, and probably its life." Her budget estimates for the

children in the family are reckoned with full consideration of each child as a child and with the particular needs of his age and period of development. This method seems especially necessary in estimating minimum budgets, and makes the figures especially valuable.

With the higher food costs there is increasing interest in inexpensive but adequate menu planning, and Miss Nesbitt's food instructions for charity visitors will prove suggestive and helpful as well as her budget instructions.

"The Charity Visitor," contains much of value and interest to the home economics worker, and makes one wish there were more books available which discuss method and technique from the standpoint of helping the individual family as well as from the standpoint of class room instruction.

EMMA A. WINSLOW.

Training the Children. By JAMES L. HUGHES. New York: A. S. Barnes Company, 1917, pp. 148. $.60. By mail of the Journal, $.66.

Dr. Hughes, who has been for forty years chief inspector (the Canadian equivalent of superintendent) of schools in Toronto has high claim on the attention of educators; the excellence of the Toronto schools is said to be largely due to his wise guiding hand.

The experience of forty years covers many changes in educational theory, and it is evident that the author of this little book has had an open mind and is conversant with the later as well as the earlier views. This is shown in even the chapter headings.

Dr. Hughes believes in the new training based on the self activity of the child, and in giving due heed to his right to development along positive rather than negative lines; the book is largely occupied with a contrast of the new with the old method of training.

To the American parent and educator the argument seems at times, as in the frequent allusion to "child quelling," strangely out of date, an attack on views already dead and buried. For a generation the American child has been little, some think too little, controlled or "thwarted" in its development. It would seem that our Canadian neighbors are being urged to abandon a system so long unused in our country that its advantages, especially for the elders, are remembered with regret and its vices almost forgotten. "Have I not also some rights in the world?" asks the irate parent, a question which the educator always ignores.

Dr. Hughes' contention that the boy from the farm does so well in life because his elders are too busy to bother with him is hardly convincing. Is not the real reason that he is being taught by inexorable nature? If the tool is left out, it rusts; if the cow is not milked, she goes dry. It is nature's training by rewards and punishments which in our blundering way we try to imitate in our educational systems.

Does not the "let alone" policy fall sadly short of the mark? Do we not need to teach more and more wisely than ever, and not from cowardice or ignorance desert youth which so bitterly needs guidance?

Dr. Hughes' book is full of the wisdom drawn from a long experience; still the actual child and his inevitable clash with grown up interests and plans in home and school, does not live in these pages. When will an educator make such a contribution to our knowledge of childhood as did Mrs. Bacon in "The Madness of Philip?" Perhaps we ask too much.

MARY HINMAN ABEL.

1000 Things Mothers Should Know. By MAE SAVELL CROY. New York: G. P. Putnam's Sons, 1917, pp. 296. $1.50. By mail of the Journal, $1.60.

This book carries out the suggestion of the title. It is made up of paragraphs dealing with clothing (particularly in relation to children), the nursery, medical care, health rules, hygiene and sick room suggestions, food, amusements, and a few other topics.

It does not undertake to give consecutive discussion of the topics.

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NEWS FROM THE FIELD

Vocational Adviser. Miss Katherine F. Ball has been appointed Vocational Adviser for Women in the University of Minnesota. The office was created in June, 1917 and Miss Ball is the first person to receive the appointment.

In creating the office the Board of Regents defined the scope of the work as follows:

"1. To make a study of vocations open to college women, the qualifications required, the opportunities, the remuneration, the conditions of work.

2. To study the qualifications, interests, and preparation of women students upon entering and during their course in the University.

3. To confer personally with students about their plans and to advise them in their choice of studies in preparation for their vocations.

4. In every way possible (by lectures, public conferences, and otherwise), to promote among women students seriousness of purpose and an intelligent appreciation of their duties and responsibilities as University graduates."

Miss Ball is a graduate of Wellesley College, and has done graduate work in the University of California and at Teachers College, Columbia University. In the latter institution she received her master's degree and professional diploma as Adviser to Women. She has taught in the High School in Plainfield, N. J., where in collaboration with Miss Miriam E. West she developed a special course in applied arithmetic for girls in the household arts.

The Consumers' League wants everyone to know and share the relief and joy which Monday morning, October first brought to thousands of girls and women in the restaurants of our first and second class cities.

The new law, that the American Home Economics Association helped to support, puts an end to the unlimited work-day, seven days a week, and to dangerous night work.

On October first, these workers faced their task with new zest and faith, assured of a nine hour day, a weekly day of rest, and no work after 10 p.m. Effort now must be directed toward the enforcement of the law, and also toward the development of public opinion strong enough to check the attempts to break down the safeguards of the labor law under plea of war emergency.

Department of Superintendence, N. E. A. On account of crowded conditions in Atlanta, due to the establishment there of one of the National Army cantonments and other military camps, the place of meeting of the Department of Superintendence of the N. E. A. has been changed from that city to Atlantic City. The date of the meeting is February 25 to March 2, 1918.

It has been suggested that, instead of the single session usually held by the American Home Economics Association in connection with this department, the deferred annual meeting of our Association be held at this time. This is under consideration by the Council.

Further announcement will be made in the January issue.

Massachusetts Institute of Technology. Miss Amy Walker, M.A., Smith College, has been appointed research assistant in the chemistry of foods, under the Ellen H. Richards Fund, for the year 1917–18. The work will be carried on under the direction of Professor A. G. Woodman, and it is proposed to study chemical changes, with special reference to the nitrogen compounds, which take place when fish decomposes before and after heating at relatively high temperatures.

The American Association for the Advancement of Science holds its annual meeting in Pittsburgh, Pa., December 28, 1917 to January 2, 1918.

The Society of American Bacteriologists will meet in Washington, D. C., December 27 to 29.

HOME ECONOMICS LECTURE ON THE STANDARD OF LIVING IN JAPAN

The International Committee on Home Economics of the American Home Economics Association is glad to announce that Professor K. Morimoto, Ph.D., of the Department of Political Economy in the Imperial University at Sapporo, Japan, will be available to give lectures on a few dates this fall and winter on the "Standard of Living in Japan, with suggestions for reducing the High Cost of Living in America." The lecture is illustrated with colored slides. Professor Morimoto is taking his Doctor's degree from Johns Hopkins University, and during the two years—1905–07, delivered several hundred lectures before American audiences. He has during the past two years been commissioned by the Japanese Government to study the standard of living in the United States, the results of which are shortly to be published in Japan. He is soon to publish in this country in the Johns Hopkins University Studies, "The Standard of Living in Japan."

Professor Morimoto is also gathering information regarding Home Economics Education in this country in connection with a plan for establishing a college of home economics in Japan, and this inquiry will take him to several of our leading colleges of home economics. The International Committee bespeaks the cordial coöperation of American Institutions which Professor Morimoto may find it possible to visit.

Professor Morimoto is giving some of his free time to these lectures, and is devoting the proceeds to the foundation of the Clark Memorial Church at the University of Sapporo, in memory of Doctor William S. Clark, formerly President of the Massachusetts Agricultural College, who went to Japan at the request of the Japanese Government in 1876, to establish the Sapporo Agricultural College, now part of the Imperial University.

The fee for the lecture is set at $15 to $25, as local conditions may make possible; because of his plan of visiting certain institutions on his transcontinental trip there need in many cases be no additional expense if it proves feasible to arrange the lecture; in other cases, some travelling expense may be involved.

Correspondence regarding dates and fees should be had directly with Professor Morimoto, addressing him at 1313 North Patterson Park Avenue, Baltimore, Maryland.

(Signed) INTERNATIONAL COMMITTEE ON TEACHING OF HOME ECONOMICS.
BENJAMIN R. ANDREWS, Chairman
Teachers College, New York City
HELEN W. ATWATER
MARY SCHENCK WOOLMAN
CATHARINE J. MACKAY
President American Home Economics Association

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